BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Frederic Canut et al. Serial No.: 09/765,916 Filing Date: January 18, 2001 Title: SYSTEM AND METHOD FOR SOFTWARE CODE OPTIMIZATION	Examiner: Insun Kang Group Art Unit: 2193 Confirmation No.: 8270

REPLY BRIEF UNDER 37 C.F.R. 41.41

Mail Stop Appeal Brief - Patents
Commissioner for Patents
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Appellants submit this Reply Brief pursuant to the Examiner's Answer mailed on August 02, 2007. Thus, this Reply Brief is timely filed.

This Reply Brief is organized as follows in accordance with 37 C.F.R. § 41.41.

I. Status of Claims.

II. Status of Amendments.

III. Grounds of Rejection to be Reviewed on Appeal.

IV. Argument.

I. Status of Claims:

Claims 1-26 are pending. Claims 1-26 stand rejected, and are appealed.

II. Status of Amendments:

Appellants respectfully reiterate that no amendment has been filed after the final office action dated September 01, 2006 as Appellants so stated in the Appeal Brief.

Appellants filed a response to the September 01, 2006 final office action on November 01, 2006 which has been entered. However, no claim amendment was made in the response.

III. Grounds of Rejection to be Reviewed on Appeal:

A. Claims 1-3, 8-16, and 21-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication US 2003/0005419 to Pieper and et al. (hereinafter Pieper) in view of Cain et al., *Portable Software Library Optimization*, 2/1998 (hereinafter Cain).

B. Claims 4-7 and 17-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pieper in view of Cain and further in view of Kum et al., *0-7803-5041-3/99, IEEE* (hereinafter Kum).

IV. Argument:

A. Claims 1-3, 8-16, and 21-26:

Claim 1 recites at least the following limitations which claim 14 also similarly recites:

> (a) optimizing the software program such that a ***resulting first optimized form*** of the software program is ***completely independent of the target processor*** and is at least partially coded in the high-level language, determining a first performance profile for the first optimized form of the software program , and comparing the first performance profile with the performance objectives;
>
> (emphasis added.)

(a) The Examiner's Answer cites to paragraphs [0009], [0018], [0020], and [0045] and purports that Pieper discloses "the first optimization from a resulting first optimized form of the software program is completely independent of the target processor . . . ." p. 12, Examiner's Answer. Appellants respectfully disagree.

Appellants respectfully submit that in Fig. 2 and para. [0030], Pieper specifically states that "front end process 54 translates source code 52 into a compact intermediate form 56. Code 56 is then processed by optimization processes 58" which "expands code 56 into an expanded intermediate form 60" which in turn "is substantially independent of the architecture of the target processor 12." That is, regardless of whether the compact intermediate form 56 is completely independent of the processor or machine, the explicit disclosure that the optimizer process 58 processes the intermediate form 56 clearly indicates that the intermediate form 56 is not in an optimized form as it is produced before the optimizer process 58. Furthermore, the product of the optimizer processes 58 – the expanded intermediate form 60 – is also not completely independent of the machine or process because, as para. [0030] explicitly states, "[t]he code 60 output by the optimization processes 60 is in

an intermediate level program code language that is substantially independent of the architecture of the target processor 12." (Emphasis added.)

The Examiner's admission in the March 06, 2006 Office Action that "Pieper uses the term[] 'substantially independent' which indicates that some portion is not independent", p. 8, Section 7 (emphasis added), also clearly indicates that the resulting optimized form (i.e., code 60) is not completely independent but is merely substantially independent of the target processor. As such, Appellants respectfully submit that Pieper does not disclose the claimed limitation of "optimizing the software program such that a resulting first optimized form of the software program is completely independent of the target processor . . ." of claim 1.

(b) The Examiner's Answer on p.11 cites to para. [0020] and [0045] of Pieper and purports that the optimized code is completely target independent. Appellants respectfully disagree.

Appellants first respectfully submit that these paragraphs of Pieper do not disclose or suggest that that any optimized code in Pieper is "completely independent of the target processor" as claimed in claims 1 and 14.

Appellants further respectfully point to para. [0017]-[0018] in Pieper where Pieper explicitly states its advantages over the prior art in that "[i]t is our contention that this consideration [of how far ahead to prefetch] should be made in terms of the cache memory itself (i.e., . . . to match the simultaneous request capability of the memory system)" and that "[t]he Alpha 21264TM processor dismisses prefetch instructions that hit in the on-chip cache . . . . Therefore, it is best that program code . . . be fitted with prefetch instructions . . . ." (Emphasis added.) In addition, Pieper also explicitly states in para. [0019] that "among the optimization process is a process that determines

whether and where in the second set of instructions to insert memory prefetch instructions." That is, not only is Pieper's optimization process not completely independent of the target processor but it actually takes the processor and capability of the memory system into consideration when optimizing the code to include prefetch instructions and is thus not completely independent of the target processor or the machine.

Therefore, Appellants respectfully submit that the allegation in the Examiner's Answer that Pieper's optimized code is completely machine independent does not hold and is actually contrary to the explicit disclosure as presented above in Section IV(A)(a).

(c) The Examiner's Answer on pp. 10-11 also cites to p.2 ll. 13-16 of the Specification and purports that "the completely independent optimization is a generic optimization that dose not include machine-specific code."

Appellants first respectfully submit that these cited passages do not support the allegation that Pieper discloses a resulting optimized form of the software program in Pieper that is completely independent of the target processor.

Moreover, Appellants further respectfully submit that what ll. 13-16 on p. 2 of the Specification discloses is merely one embodiment of the invention. More importantly, Appellants respectfully point to another embodiment on p. 6, ll. 5-11 of the Specification where the Specification explicitly states that "[t]he code optimization . . . preferably does not employ any optimization tools that depend on the processor that is meant to host the application." (Emphasis added.) Therefore, not only the programming language is "completely portable between all portable DSP targets", p. 6, ll. 7-8, but the code optimization also does not use any optimization tools which

depend upon the host processor, p. 6, ll. 5-11. As such, this embodiment as described on p. 6 clearly supports the claimed limitation of "a resulting first optimized form of the software program is completely independent of the target processor."

Thus, Appellants respectfully submit that Pieper does not disclose at least the above claimed limitations of claims 1, 14, and their respective dependent claims and thus may not be used to preclude their patentability under 35 U.S.C. § 103(a).

B. Claims 4-7 and 17-20:

(a) Appellants respectfully submit that claims 4-7 and 17-20 are allowable over Pieper in view of Cain and Kum under 35 U.S.C. § 103(a) due to at least their respective dependency on claims 1 and 14 for at least the reasons presented in Section IV(A).

For the above reasons, Appellants respectfully submit that all claims are believed to be allowable and that the subject application is in condition for allowance. Accordingly, Appellants respectfully request that the Board of Patent Appeals and Interferences overrule the Examiner and allow claims 1-26.

Respectfully submitted,

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